REMARKS

Claims 1-3, 5-12 and 14-22 are the claims pending in the application. Claims 1-3, 5-12 and 14-22 stand rejected on prior art grounds. Applicants respectfully traverse the prior art rejections based on the following discussion.

I. The Prior Art Rejections

Claims 1-3, 5-12, 14-20 and 22 are rejected under 35 U.S.C. 103(a) as obvious over Guire, et al. ("Guire")(U.S. Patent Application 2003/0077452) in view of Van Alsten ("Van Alsten")(U.S. Patent 6,299,983). Claim 21 is rejected under 35 U.S.C. 103(a) as obvious over Guire in view of Van Alsten, and further in view of Bradshaw ("Bradshaw")(U.S. Patent 5,594,064).

A. The Rejection Based on Guire in view of Van Alsten

Regarding independent claim 1, and related dependent claims 2, 3, 5-12 and 14-20 and 22, the references, separately, or in combination, fail to disclose, teach or suggest a reason or motivation for being combined.

Again, and as previously discussed in the Amendment of October 17, 2008, nothing within Guire, which relates to a self-assembling monolayer on a surface of medical devices to provide the surface with desirable ultra-thin coating properties for interaction with bodily fluid, suggests using a derivatized metal surface, including an aliphatic acid backbone, of functionalized polymers with improved durability as disclosed in Van Alsten.

Please note, it is questionable whether Guire could substitute in Van Alsten's materials, which include zinc via zinc-acetate, as part of a material used inside a body as Guire specifically indicates problems of materials interacting with bodily fluids. Thus, this combination of references probably is not meant to be combined with each other in a real environment.

Importantly, the Office Action indicates that zinc is biologically compatible without indicating the levels of acceptable compatibility nor acknowledging that Van Alsten teaches such an acceptable level. Further, Van Alsten teaches the use of Zinc-Acetate. Applicant questions whether Zinc-acetate is acceptable at all. Further, Applicant submits that the MPEP requires that such a response about a combination be done with specificity not generalizations like those provided in the Office Action. Clearly, zinc is only acceptable at discrete levels in the human body. Thus, without such specific information provided by Van Alsten and as not reflected in the Office Action comments, such an argument is a "stretch," particularly, as KSR requires a "reasonable basis" for making a combination. Applicant traverses such an "urged' combination. (Office Action, Page 5).

Therefore, and using the most recent and more relaxed interpretation of obviousness under KSR v. Teleflex, No. 04-1350, 550 U.S. __ (April 30, 2007), one of ordinary skill in the art of would not have combined these references absent hindsight.

Second, even assuming that the references would have been combined, Van Alsten does not disclose, teach or suggest the features of independent claim 1, including the first and second terminal, linking functional groups are chemically bonded to respective surfaces of a corresponding pair of the inorganic particles so that the

multifunctional linking molecules interconnect at least three of the inorganic particles to one another to form a network of the inorganic particles interconnected by the multifunctional linking molecules, which are intermediate the inorganic particles. (See Application, Page 7, lines 8-15 and lines 16-23; Page 8, lines 8-23; Page 9, lines 8-18; Page 11, lines 1-12; Page 15, lines 1-15; and Figures 1 and 2).

Indeed, Applicant agrees with the Office Action that Guire does not disclose, teach or suggest, the use of multifunctional linking groups or fluorine atoms appended to the backbone. Accordingly, Applicant traverses the assertion that Guire teaches the rest of the limitations of the claims, including the above cited feature of claim 1. (See Office Action, Page 3, First Paragraph).

Van Alsten is also deficient.

Briefly, in Van Alsten, the α end of the α-ω species may be a terminal linking functional group, whereas Van Alsten does not teach nor suggest nor is it reasonable that the ω end is a terminal, linking functional group particularly as Van Alsten explicitly indicates that the ω end is bonded to a functional group not a metal particle as suggested in the Office Action. Thus, and contrary to the assertion in the Office Action, one of ordinary skill in the art would not expect that both ends could be bound to metal particles. (See Office Action, Page 5, Paragraph 3).

For emphasis, and as previously discussed in the Amendment of October 17, 2008, Figures 1-4 of Van Alsten merely disclose a conventional process for producing a derivatized metal surface, including an aliphatic acid backbone, of functionalized polymers with improved durability. In particular, the process for producing a derivatized metal surface includes contacting a metal surface with an α-ω difunctional substantially

linear aliphatic or fluoroaliphatic acid, or salt thereof, represented by the formula, α-R-ω. The R (what the Office Action identifies as "the linker" and attempts to analogize to Applicant's multifunctional linking molecule) is an α-ω bidentate substantially unbranched aliphatic or fluoroaliphatic organic radical, which includes an α end (what is somewhat analogous to Applicant's first terminal linking functional group) and an ω end (what is somewhat analogous to a second linking functional group). The α end is bonded to an anion of an oxy-acid where the anion is ionically bonded to metal cations on a surface of a substrate. In contrast, the ω end is bonded to a non-metal functional group, which may be further bonded to a polymer . Further, the ω end is a functional group selected, independently of the α end, from the group consisting of radiocals of oxyacids of different elements, for example, phosphorous. Importantly, the α end of the α-ω species forms an anion group ionically bound to cations formed from the metal surface, that is, the α end is a terminal, linking functional group bound to the metal surface.

In contrast, Van Alsten explicitly indicates that the ω end is a functional group selectively bonded to a functional group not a metal particle as the ω end exhibits the receptivity to association with certain other functional molecules other than a metal surface. Accordingly, the ω end is a non-terminal, linking functional group, particularly, as the ω end undergoes a reaction with a solution comprising a multivalent salt thereby forming an ionic complex, which appears to undergo two subsequent reactions as indicated in Figures 3 and 4. As a result, the ω end may include being bonded to a polymer not structurally being a terminal functional group linked to a metal. Therefore, only one end, that is, the α end of the α-ω species, is a terminal, linking end bonded to a metal surface unlike Applicant's claimed invention where the multifunctional linking

molecules, include first and second terminal, linking functional groups bonded to surfaces of particles, and thus are intermediate the inorganic particles. (See Van Alsten at Abstract; Column 2, lines 12-Column 3, line 27; Column 3, line 55-Column 4, line 67; Column 5, lines 1-65; Column 7, lines 1-55; Column 9, line 65-Column 10, line 10; and Figures 1-4).

Further, and contrary to the assertion in the Office Action, and based on the above discussion, Van Alsten also does not disclose, teach or suggest multifunctional linking molecules, let alone, first and second, terminal linking functional groups are chemically bonded to respective surfaces of a corresponding pair of the inorganic particles where the multifunctional linking molecules interconnect at least three of the inorganic particles to one another to form a network of the inorganic particles interconnected by the multifunctional linking molecules, which are intermediate the inorganic particles, like Applicant's invention. Consequently, Van Alsten is specifically designed for producing a derivatized metal surface of functionalized polymers with improved durability not producing multifunctional linking molecules for interconnecting inorganic particles, for example, metal, to form a network of inorganic particles like Applicant's invention. Thus, Van Alsten is structurally distinct from Applicant's claimed invention. Van Alsten is also a deficient reference. (See Office Action, Page 5, Third Paragraph).

In contrast, and for emphasis, Applicant discloses an energetic composite material including inorganic particles, and self assembled monolayers formed on the inorganic particles. In particular, Applicant discloses a multi-functional linking molecule(s) 14 where the first terminal carboxyl functional group 14b is bonded to a surface 12a of inorganic particle 10a, and similarly, the second terminal carboxyl functional group 14c

is bonded to a surface 12b of an inorganic particle 10b. In an exemplary embodiment, the multi-functional linking molecule is bonded to surfaces 12a, 12b of at least three inorganic particles, 10a, 10b, for example, metal substrates, to form a network of interconnected inorganic particles 10a, 10b. In contrast, Van Alsten only discloses an α-ω species of an aliphatic acid where the α end is somewhat analogous to a terminal functional linking group bonded to a surface, such as, polymers, whereas the ω end is associated with certain functional molecules other than a metal surface, where the ω end is not a terminal, linking functional group. Thus, Applicant traverses the assertion that Van Alsten teaches Applicant's claimed invention.

For at least the reasons outlined above, and using the most recent and more relaxed interpretation of obviousness under KSR v. Teleflex, No. 04-1350, 550 U.S. __ (April 30, 2007), Applicant respectfully submits that neither Guire nor Van Alsten, alone or in combination, disclose, teach or suggest including, the first and second terminal linking functional groups are chemically bonded to respective surfaces of a corresponding pair of the inorganic particles so that the multifunctional linking molecules interconnect at least three of the inorganic particles to one another to form a network of the inorganic particles interconnected by the multifunctional linking molecules, which are intermediate the inorganic particles as recited in independent claim 1 of Applicant's invention.

For the reasons stated above, the claimed invention, and the invention as cited in independent claims 1, and related dependent claims 2, 3, 5-12, 14-20 and 22, are fully patentable over the cited references.

B. The Bradshaw Reference

In response to the Office Action, Applicant understands the reason for using Bradshaw.

To make up for the deficiencies of Guire and Van Alsten as discussed above, the Examiner relies on Bradshaw to teach the invention of claim 21. Since Bradshaw fails to resolve the deficiencies of the above combination, Bradshaw in combination with Guire and Van Alsten most certainly does not teach claim 21.

First, Bradshaw does not have the same aim as either Guire or Van Alsten as discussed above.

As previously discussed in the Amendment of October 17, 2008, and using the most recent and more relaxed interpretation of obviousness under KSR v. Teleflex, No. 04-1350, 550 U.S. __ (April 30, 2007), Bradshaw does not disclose, teach or suggest, the first and second terminal, linking functional groups are chemically bonded to respective surfaces of a corresponding pair of the inorganic particles so that the multifunctional linking molecules interconnect at least three of the inorganic particles to one another to form a network of the inorganic particles interconnected by the multifunctional linking molecules, which are intermediate the inorganic particles, as recited in independent claim 1 of Applicant's invention.

Again, Bradshaw does not disclose, teach or suggest, including a member selected from the group consisting of the multifunctional linking molecules and the non-linking molecules comprises an ethylenically unsaturated crosslinkable group as recited in claim 21.

Instead, Bradshaw recites a polymeric composition containing inorganic fillers and a binder component where the binder component encapsulates the filler without any multi-functional linking molecule. Since Bradshaw does not include a multi-functional linking molecule, let alone, first and second terminal linking functional groups, let alone, the first and second terminal linking functional groups are chemically bonded to respective surfaces of a corresponding pair of the inorganic particles so that the multifunctional linking molecules interconnect at least three of the inorganic particles to one another to form a network of the inorganic particles interconnected by the multifunctional linking molecules, which are intermediate the inorganic particles, Bradshaw is deficient. Thus, Bradshaw does not teach the specific limitation of claim 21. (See Bradshaw at Abstract; Column 1, lines 10-20; Column 1, line 60-Column 2, line 6; Column 3, lines 3-25; and Figures 1-5).

II. Formal Matters and Conclusions

In view of the foregoing, Applicants submit that claims 1-3, 5-12, and 14-22, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayment to Attorney's Deposit Account Number 50-1114.

Respectfully submitted,

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